

## **COMPLIANCE PLAN FOR ARSENIC**

### **BACKGROUND INFORMATION**

**Facility Name:** Polacca Community Water System

**Location:** Villages of Polacca, Sichomovi, Tewa, and Walpi  
First Mesa, Arizona  
Hopi Indian Reservation

**Owner/Operator:** First Mesa Consolidated Villages  
P.O. Box 260  
Polacca, Arizona 86042

**Facility Contact:** Belma Navakuku, Business Manager

**PWS ID No.:** 0400106

### **INTRODUCTION**

The objectives of this Compliance Plan (CP) are to: (1) return the Polacca community water system to compliance with the Safe Drinking Water Act (SDWA) and its implementing regulations related to the arsenic maximum contaminant level at 40 CFR Part 141; and (2) work cooperatively with the First Mesa Consolidated Villages (FMCV) to assure that the Polacca water system consistently produces safe drinking water for its consumers.

This CP includes a list of Polacca's arsenic-related violations, a discussion of compliance assistance tools to aid with compliance with the regulatory requirements associated with the arsenic-related violations, and a list of actions and associated schedule to be completed in order for the Polacca water system to return to compliance.

Arsenic is a naturally-occurring mineral found throughout the United States. It is primarily found in groundwater. Arsenic is odorless and tasteless. It enters drinking water supplies from natural deposits in the earth or from agricultural and industrial practices. Non-cancer effects can include thickening and discoloration of the skin, stomach pain, nausea, vomiting, diarrhea, numbness in hands and feet, partial paralysis, and blindness. Arsenic has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate.

### **APPLICABLE REGULATORY REQUIREMENTS AND VIOLATIONS OF THE POLACCA WATER SYSTEM TO ARSENIC**

1. 40 CFR §141.2 defines "maximum contaminant level" ("MCL") as the maximum permissible level of a contaminant in water which is delivered to any user of a public water system. The MCL for arsenic is 0.010 milligrams per liter (mg/L) or 10 parts per billion (ppb) under 40 CFR §141.62(b)(16).
2. 40 CFR §141.23(c)(1) requires that the frequency of monitoring conducted to determine

compliance with the MCL for arsenic shall be one sample at each sampling point during each compliance period for groundwater systems.

3. 40 CFR §141.31(b) requires the submission of analytical and monitoring data to the U.S. Environmental Protection Agency (USEPA) within ten (10) calendar days following the end of the required monitoring period.
4. 40 CFR §§141.23(c)(7) and 141.23(c)(8) require that any system that exceeds the MCL for arsenic (0.010 mg/L) shall monitor on a quarterly basis. Quarterly sampling at the sampling point exhibiting an exceedance must begin the quarter after the exceedance occurred and continue until USEPA has determined that the system is reliably and consistently below the MCL.
5. 40 CFR §141.23(h)(1) and USEPA Guidance state that compliance with the MCL for arsenic is determined by a running annual average (RAA) of quarterly samples at any sampling point. If a system does not collect all the required samples, compliance will be based on the RAA of the samples collected, unless any one sample would cause the RAA to be exceeded, in which case the system is out of compliance immediately.
6. The Polacca water system has violated the MCL for arsenic from August 2007 until the present, based on the following sampling results:

Sample Date	Sample Location	Method ID No.	Arsenic (mg/L)	RAA (mg/L)
8/7/2007	Well #8	200.8	0.02	0.02
1/6/2009	Well #8	200.9	0.018	0.018

## ACTIONS TO BE TAKEN

The Polacca water system shall develop and complete the implementation of the following plan to serve water that meets the MCL for arsenic, as well as all other regulatory health-based drinking water standards, no later than **January 23, 2015**.

**Feasibility Study:** A feasibility study for arsenic mitigation options was completed by the Hopi Tribe through the Indian Health Service (IHS) in August 2008. The recommendation of the feasibility study is that a regional water system (also known as the Hopi Arsenic Mitigation Project [HAMP]) be constructed to deliver water from a region known as "Turquoise Trail" to the villages of Shungopavi, Mishongnovi, Sipaulovi, and the First Mesa Consolidated Villages. Water sampling results from a well in the Turquoise Trail area show that the water in the well contains arsenic at a concentration below the arsenic MCL of 0.010 mg/L. FMCV proposes to tie the Polacca water system into the HAMP as the option to mitigate the high arsenic levels in the drinking water presently being delivered by the Polacca water system.

**Hopi Arsenic Mitigation Project:** IHS, working with the Hopi Tribe, has developed a list of activities and associated schedule to plan, design, and construct the HAMP, which will be constructed in a number of phases. Tying in the Polacca water system is the first phase of the HAMP. Presently, the HAMP is to be completed and fully operational by January 23, 2015. However, this date is highly dependent on identifying and obtaining the approximately \$25 million of funding needed to fully construct the HAMP. Presently, only part of the required funds

to complete Phase 1 of the HAMP has been obtained.

The following are the tasks and associated milestones for the HAMP:

TASK	SCHEDULE
Identify and apply for available project funding (e.g., USEPA, IHS, HUD, USDA, BIA, or others)	On-going
Complete environmental clearances	As needed until December 30, 2014
<b>PHASE 1</b>	
Complete Hopi water utility strategic plan	July 30, 2011
Complete new source well	October 30, 2011
Complete rehabilitation of existing well	December 30, 2011
Complete new storage tank	June 30, 2012
Complete construction of the water transmission line from the well field to the new storage tank in the Turquoise Trail area	December 30, 2012
Complete construction of the water transmission line from the new storage tank to First Mesa	July 30, 2013
<b>PHASE 2</b>	
Complete construction of the water transmission line from the well field line to the Shungopavi storage tank	July 30, 2014
<b>PHASE 3</b>	
Complete construction of the water transmission line from Shungopavi to the Upper Mishongnovi storage tank	November 30, 2014
Complete construction of the water transmission line from Upper Mishongnovi to the Lower Sipaulovi storage tank	January 23, 2015

**Interim Measure, If Any:** – FMCV may consider implementing an interim measure(s) at any time as the HAMP activities proceed. Activities related to any interim measure being considered by FMCV must be discussed with USEPA, written plans for the measure prepared by FMCV and submitted to USEPA, and the progress of the interim measure discussed in the quarterly reporting required under this CP.

If a point-of-use (POU) or point-of-entry (POE) device is selected by FMCV as an interim measure: (1) a monitoring plan for the POU or POE shall be developed by FMCV and submitted to USEPA by a date agreed upon between FMCV and USEPA, and (2) an operation

and maintenance plan shall be developed by FMCV and submitted by FMCV to USEPA by a date agreed upon between FMCV and USEPA. These plans shall describe in detail how the Polacca water system will comply with the requirements and recommendations in Attachment 1.

**Continuous Compliance:** The Polacca water system shall maintain compliance with 40 CFR §141.62(b)(16).

**Monitoring:** As noted above, 40 CFR §§141.23(c)(7) and (c)(8) require that any system that exceeds the arsenic MCL of 0.010 mg/L shall monitor on a quarterly basis. The Polacca water system must continue to comply with quarterly sampling at the sampling point exhibiting an exceedance beginning the quarter after the exceedance occurred and continue until USEPA has determined that the system is reliably and consistently below the MCL. Results of any required test measurement or analysis are to be submitted to USEPA at the address below within the first ten (10) calendar days following the month in which the results are received, or the first ten (10) calendar days following the end of the required monitoring period (January 10, April 10, July 10, October 10), whichever of these is the shortest.

**Public Notice:** 40 CFR §§141.203(a) and 141.203(b) require that a system conduct a Tier II public notice within 30 calendar days after the system learns of an MCL violation. 40 CFR §141.205 requires that the notice contain specific content and standard language. In addition, 40 CFR §141.31(d) requires the water system to send a certification to USEPA stating that it has fully complied with the public notification requirements, along with a copy of the notice, within ten (10) calendar days of conducting the public notification. Public notices must be repeated every three (3) months as long as the violation exists. Attachment 2 contains an example of an appropriate Tier II Public Notice.

**Consumer Confidence Report:** 40 CFR §141.151 requires certain content in a community water system's annual Consumer Confidence Report (CCR). 40 CFR §141.152 requires CCRs covering the period January 1 through December 31 of the previous calendar year be distributed to water system customers and USEPA no later than July 1 of each year. 40 CFR §141.155(c) requires each community water system to mail a certification to USEPA that the CCR has been distributed to its customers. This certification of delivery should be submitted to USEPA within three (3) months of the date the community water system is required to distribute the CCR.

40 CFR §§141.153 and 141.154 requires a community water system to include in the CCR, but are not limited to:

1. Water System Information: Name/phone number of a contact person; information on public participation opportunities.
2. Source(s) of water.
3. Definitions: Maximum Contaminant Level (MCL); MCL Goal (MCLG); Treatment Technique (TT); Action Level (AL); Maximum Residual Disinfectant Level (MRDL); MRDL Goal (MRDLG).
4. Detected Contaminants: A table summarizing reported concentrations and relevant MCLs and MCLGs or MRDLs and MRDLGs; known source of detected contaminants; health effects language.
5. Information on monitoring for *Cryptosporidium*, radon, and other contaminants (if detected).
6. Compliance with Other Drinking Water Regulations: Any violations and Ground Water Rule (GWR) special notices.

7. Variances and Exemptions (if applicable).
8. Required Educational Information: Explanation of contaminants in drinking water and bottled water; information to vulnerable populations about *Cryptosporidium*; statements on nitrate, arsenic, and lead.

In particular, the following language must be included in the CCR with regard to the arsenic exceedance:

"Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer."

**Reporting:** In addition to the reporting requirements associated with arsenic, FMCV shall provide USEPA with written progress reports discussing the status of the activities identified in this CP. The reports shall be submitted to USEPA at least quarterly and are due 30 calendar days after each three-month period (that is, by January 30, April 30, July 30, and October 30).

**Modifications to the Compliance Plan:** If FMCV wishes to modify any element(s) of the CP to bring the water system into compliance with the arsenic MCL, FMCV must notify USEPA in writing as soon as feasible to request CP modification(s), including a proposed revised schedule. Any request to change the schedule in this CP must include an explanation(s) for the reasons why the original schedule could not be met and the basis for the proposed revised schedule. Any modification to the CP will be documented in writing by USEPA.

**Implementation Delays:** If any event occurs that causes, or is likely to cause, a delay in meeting any milestones in this CP within any time frame specified in this CP, FMCV shall notify USEPA in writing (e.g., letter, e-mail) of the following within seven (7) business days of learning of the actual or likely delay:

- The cause and anticipated length of the delay,
- The measure(s) taken and/or to be taken to prevent or minimize the delay, and
- The timetable by which the water system intends to address the actual or likely delay.

## **FURTHER COMPLIANCE ASSISTANCE**

USEPA will provide assistance at the request of the Polacca water system in developing Public Notification language; composing the CCRs; designing a satisfactory monitoring plan; and providing further technical input regarding the implementation of this CP. As resources allow, USEPA will provide training for personnel to operate the water system and will attempt to assist the water system to obtain water operator certification.

## **CONTACT**

All correspondence should be submitted to:

If to USEPA: Bessie Lee  
U.S. Environmental Protection Agency, Region 9  
Drinking Water Office (WTR-6)  
75 Hawthorne Street

San Francisco, California 94105  
Telephone: (415) 972-3776  
Fax: (415) 947-3549  
E-mail: [lee.bessie@epa.gov](mailto:lee.bessie@epa.gov)

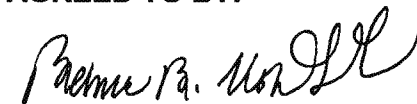
If to FMCV:

Belma Navakuku, Business Manager  
First Mesa Consolidated Villages  
P.O. Box 260  
Polacca, Arizona 86042  
Telephone: (928) 737-2670  
Fax: (928) 737-2347  
E-mail: [bbnavakuku@yahoo.com](mailto:bbnavakuku@yahoo.com)

Should the arsenic mitigation milestones established in this CP not result in timely compliance by the Polacca water system to meet the arsenic MCL and/or other arsenic-related SDWA requirements, the Polacca water system may be subject to additional enforcement actions, including but not limited to, judicial and administrative actions, which may include penalties.

This CP shall not prohibit, prevent, or otherwise preclude USEPA from taking whatever action it deems appropriate to enforce the SDWA in any manner and shall not prohibit, prevent, or otherwise preclude USEPA from using this CP to substantiate its approach to escalating enforcement actions.

AGREED TO BY:



Signature

BELMA B. NAVAKUKU

Printed Name

BUSINESS MANAGER

Title

FIRST MESA CONSOLIDATED VILLAGES

Agency Name

March 21, 2011

Date

Arsenic Compliance Plan - Polacca

AGREED TO BY:



Signature

Alexis Strauss

Printed Name

Director, Water Division

Title

U.S. Environmental Protection Agency

Agency Name

21 March 2011

Date

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## ATTACHMENT 1

### Regulatory Requirements for Using Point-of-Use or Point-of-Entry Devices

Section 1412(b)(4)(e) of the Safe Drinking Water Act (SDWA) imposes the following requirements for the use of point-of-use (POU) or point-of-entry (POE) devices:

1. *POU and POE units must be owned, controlled, and maintained by the public water system (PWS) or by a contractor hired by the PWS to ensure proper operation and maintenance of the devices and compliance with MCLs.* This provision does not require the PWS staff to perform all maintenance or management functions. The PWS can contract out these tasks. However, it does emphasize that the PWS retains final responsibility for the quality and quantity of the water provided to the service community and must closely monitoring all contractors. Further, the PWS may not delegate its responsibility for the operation and maintenance of installed POU or POE devices to homeowners as part of a compliance strategy.
2. *POU and POE units must have mechanical warnings to automatically notify customers of operational problems.* Each POU or POE treatment device installed as part of a compliance strategy must be equipped with a warning device (e.g., alarm, light) that will alert users when their unit is no longer adequately treating their water. Alternatively, units may be equipped with an automatic shut-off mechanism to meet this requirement.
3. *If the American National Standards Institute (ANSI) has issued product standards for a specific type of POU or POE treatment unit, then only those units that have been independently certified according to these standards may be used as part of a compliance strategy.* ANSI has adopted the standards for POU and POE devices developed by National Sanitation Foundation (NSF) International, formerly known as National Sanitation Foundation.

40 CFR §141.62(d) also clarifies that when POU or POE devices are used for compliance, programs to ensure proper long-term operation, maintenance, and monitoring must be provided by the water system to ensure adequate performance. Further criteria for POE devices are outlined in 40 CFR §141.100. These criteria should be applied in this case, as follows, to ensure safe and effective long-term operation, maintenance, and monitoring of the POU or POE devices.

- (a) The PWS must develop and obtain U.S. Environmental Protection Agency (USEPA) approval for a monitoring plan before POU or POE devices are installed for compliance. The POU or POE device must provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all national primary drinking water regulations and would be of acceptable quality similar to water distributed by a well-operated central treatment plant. Monitoring must include, among other things, physical measurements and observations such as total flow treated and mechanical condition of the treatment equipment.
- (b) Effective technology must be properly applied under a plan approved by USEPA and the microbiological safety of the water system must be maintained.

## **ATTACHMENT 2**

### **Arsenic Public Notification Instructions / Notice / Certification Tier II Community Public Notice Instructions**

The arsenic exceedance violation requires a Tier II public notification because it has the potential to result in serious adverse health effects due to exposure to the drinking water. You must provide a public notice to persons served as soon as practical, but within thirty (30) calendar days after you learn of the violation or situation.

Persistent problems can be serious. You must issue a repeat notice every three (3) months for as long as the violation persists.

#### **NOTIFYING YOUR CONSUMERS**

You have selected the following method(s) of delivery for your notice to consumers:

- ☐ Hand or direct delivery
- ☐ Mail, as a separate notice or included with the bill

You have also selected the following additional delivery method(s):

- ☐ E-mail
- ☐ Delivery to community organizations
- ☐ Other

If you post the public notice, it must remain posted until the violation is resolved. If the violation has been resolved, you must post the notice for at least seven (7) calendar days. If you mail, post, or hand deliver the public notice, print your notice on letterhead, if available.

You must provide a copy of the public notice in effect to all new customers prior to, or at, the time service begin.

This notice is appropriate for mailing, hand or direct delivery, or posting. However, you may wish to modify it for another form of notice. If you do, you must include all the required elements (refer to the public notice Certification of Delivery) and leave the health effects language in italics unchanged. This language is mandatory.

#### **REQUIRED INFORMATION**

The public notification is intended to fulfill the ten (10) federally-required elements for public notification. However, it is your responsibility to ensure that all the required information is included.

If you modify the public notice, you must include all required elements and leave the health effects language unchanged. This language is mandatory.



## **EXAMPLE PUBLIC NOTICE**

### **IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER**

#### **THE POLACCA WATER SYSTEM HAS LEVELS OF ARSENIC ABOVE THE DRINKING WATER STANDARD**

The Polacca water system recently violated the drinking water standard for arsenic. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Testing results we received on xxx show that our system exceeds the standard, or maximum contaminant level (MCL), for arsenic. The standard for arsenic is 0.010 milligrams per liter (mg/L) or 10 parts per billion (ppb). Arsenic in the Polacca water system was found at xxx ppb.

Arsenic in drinking water can come from the erosion of natural deposits, runoff from orchards, or glass and electronic production wastes.

#### **WHAT SHOULD I DO?**

You do not need to use an alternative water supply, such as bottled water. If you have specific health concerns, please consult your local health provider.

#### **WHAT DOES THIS MEAN?**

This is not an immediate risk. If it had been, you would have been notified immediately. *Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.*

#### **WHAT IS BEING DONE?**

The Polacca water system will be tied into the Hopi Arsenic Mitigation Project (HAMP). The source wells for the HAMP have, and are expected to have, arsenic levels below 10 ppb. Construction of the HAMP is presently expected to be completed by December 31, 2018. Once the Polacca water system is tied into the HAMP, the arsenic exceedance should be resolved.

#### **CONTACT INFORMATION**

For more information, please contact:

Belma Navakuku, Business Manager  
First Mesa Consolidated Villages  
P.O. Box 260  
Polacca, Arizona 86042

## EXAMPLE CERTIFICATION OF DELIVERY OF THE PUBLIC NOTICE

**DATE:** xxxx, 2010

**SUBJECT:** Certification of Delivery  
Arsenic Notification

**TO:** Drinking Water Office (WTR-6)  
U.S. Environmental Protection Agency, Region 9

**FROM:** Polacca Community Water System  
PWS ID No. 0400106

### **Ten (10) Required Elements**

The following elements were included in the notice(s) we provided:

1. The violation or situation, including the contaminant(s) of concern, and the contaminant level(s),
2. When the violation or situation occurred,
3. Any potential adverse health effects from drinking the water (mandatory language provided),
4. The population at risk, including sub-populations that may be particularly vulnerable if exposed to the contaminant in their drinking water,
5. Whether alternative water supplies should be used,
6. Actions consumers should take, including when they should seek medical help (if known),
7. What is being done to correct the violation or situation,
8. When the system is expected to return to compliance or resolve the situation,
9. Contact information, and
10. A statement encouraging notice recipients to distribute the notice to others.

### **Delivery Method**

The following delivery methods were used for distribution of this notice:

- Hand or direct delivery
- Other

The public water system indicated above hereby affirms that a public notice has been provided to consumers in accordance with the delivery, content, and format requirements applicable to our system and this violation or situation.

Attached are copies of each type of notice that we provided to our consumers.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date